



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/708,341 | 11/08/2000 | Pieter Straasheijm | 209127.0051/15U1 | 1896 |

570 7590 01/26/2005

AKIN GUMP STRAUSS HAUER & FELD L.L.P.
ONE COMMERCE SQUARE
2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103-7013

EXAMINER

REKSTAD, ERICK J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2613

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,341

Applicant(s)

STRAASHEIJM, PIETER

Examiner

Erick Rekstad

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 11 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 4, 6-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 6-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a Final Rejection for application no. 09/708,341 in response to the amendment filed on August 11, 2004 in which claims 1, 3, 4, and 6-12 are presented for examination.

Response to Arguments

Applicant's arguments filed August 11, 2004 have been fully considered but they are not persuasive.

The Applicant's argue that the Office has misconstrued the phrase "wherein the first search uses four macroblock" in claim 1. Consequently, Applicant has amended claim 1 (without further narrowing claim 1) to make claim 1 clearer. Amended claim 1 recites that each reference block of the first search consists of four macroblocks and that each reference block for the second search is a single macroblock. That is to say, each search of the first full search is conducted using a four macroblock reference block instead of a single macroblock."

The Office Action sent on May 14, 2004 presents a rejection of the claims based on the broadest interpretation. The Applicant's arguments are based on only one interpretation of the claims. The Office views "the first search using reference blocks consisting of four macroblocks" as a limitation on the scaling of the frames. Where the frames are scaled in order for the first search to be performed using reference blocks consisting of four original full frame macroblocks. Therefore the claims are too broad and must be amended to overcome the prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7, 8, 9, 10, and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,576,772 to Kondo in view of US Patent 6,560,371 to Song et al.

[claim 1]

Kondo describes a method of finding motion vectors for use in MPEG video encoding, the method comprising:

Generating from a full frame (Fig 9A), (i) a first scaled frame (Fig. 9B) having a reduced number of pixels as compared to the full frame and (ii) a second scaled frame (Fig. 9C) having a reduced number of pixels as compared to the first scaled frame;

Performing a first, full, best match search of the second scaled frame to identify rough motion vectors (Col. 8 Lines 27-57, Col. 9 Lines 50-51);

Performing a second best match search using the rough motion vectors identified by the first search, within a limited range in the x and y directions for each macroblock of the first scaled frame to identify intermediate motion vectors (Col.10 Lines 9-37, Fig. 10B); and

Performing a third best match search using the intermediate motion vectors identified by the second search within a limited range in the X and Y directions for each

macroblock of the full frame to identify final motion vectors (Col.10 Lines 41-67, Fig. 10C).

Kondo does not specifically teach the size of a macroblock. Song teaches the macroblock can be any size from one pixel to a full frame (Col 3 Lines 64-67 and Col 4 Lines 1-3). Song further teaches in Figure 3, an equivalent hierarchical pixel reduction to Kondo (Kondo, Figs. 9A-C). The figure clearly shows the third stage (Song, 330 and Kondo Fig. 9C) contains one block (Song, 331) that is produced from four blocks (Song, 312a-d and Kondo Fig. 9A). It would have been obvious to one of ordinary skill in the art at the time of the invention that a macroblock can be any size from one pixel to a full frame. It would have been obvious to one of ordinary skill in the art at the time of the invention that the third stage performs a search using four macroblocks.

[claim 6]

The scaled frames for the reference frame are produced after obtaining the reference frame from an inverse discrete cosine transform (Col 11 Lines 32-36, Fig 1 and 11A)

[claims 7 and 8]

Kondo describes the limited range of the second and third search is $-1, 0, +1$ pixels (blocks) (Col 10 Lines 8-67, Figs 10B-10E).

[claim 9]

Kondo suggests an optional addition to the motion vector detector that provides one half-pixel accuracy rather than one pixel accuracy. Kondo also suggests that the hierarchical stages consist of any number of stages greater than 2 (Col 16 Lines 10-14).

[claims 10 and 11]

Kondo describes the method as recited in claim 1 wherein the first scaled frame is a one-half scaled frame having one-fourth of the number of pixels as a full frame and the second scaled frame is a one-fourth scaled frame having one sixteenth of the number of pixels of a full frame (Col 8 Lines 13-16, Fig 9A-9C, Fig 10A-10C).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo and Song in view of US Patent 5,485,210 to Lim et al.

Kondo and Song teach the use of the method as required by claim 1. Kondo does not teach the use of identifying a scene change and obtaining a new reference frame. Lim teaches using the same block matching technique used for determining the motion vector to also determine a scene change (Col 1 Lines 65-67, Col 2 Lines 1-16, Col 4 Lines 65-67, Col 5 Lines 1-13). The scene change detection causes a the original image to be sent rather than the residual. It is well known in the art that when an original image is sent the image is considered to be an I frame in the MPEG format. It would be obvious to one skilled in the art at the time of the invention to combine Kondo's method of finding motion vectors with Lim's scene change detector in order to be able to use the same block matching technique for both finding motion vectors and determining scene changes.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo and Song in view of US Patent 6,430,222 to Okada.

Kondo and Song teach the use of the method as required by claim 1. Kondo does not teach the identification of a still frame which can be deleted. Okada teaches

the method of skipping the coding of macroblocks that have little difference from that of the previous frame Col 8 Lines 40-50). It would be obvious to one skilled in the art at the time of the invention to combine Kondo's method of finding motion vectors with Okada's method of skipping redundant frames in order to reduce the encoding of unnecessary video information.

Claim 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo.
[claim 12]

Kondo and Song teach the use of the method as required by claim 1. Kondo does not specifically point out that the full frame is an I frame. It is well known in the art that when encoding in MPEG format an I frame is used as a reference frame for encoding P and B frames. It would be obvious to one skilled in the art at the time of the invention that an I frame would be used as the full frame in order to produce the needed reference frames for encoding the P and B frames.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

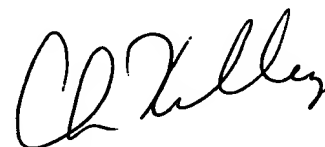
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 703-305-5543. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erick Rekstad
Examiner
AU 2613
(703) 305-5543
erick.rekstad@uspto.gov



CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600